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CONTROL ID: 1183387

TITLE: Effect on the lunar exosphere of a CME passage

PRESENTATION TYPE: Assigned by Committee (Oral or Poster)

CURRENT SECTION/FOCUS GROUP: Planetary Sciences (P)

CURRENT SESSION: P32. Science Enabled by the NASA Lunar Science Institute (NLSI): Progress and Future Directions

AUTHORS (FIRST NAME, LAST NAME): Rosemary M Killen[1], Dana M Hurley[2], William M Farrell[1], Menelaos Sarantos[3]

INSTITUTIONS (ALL): 1. Planetary Magnetospheres, NASA Goddard Space Flight Cent, Greenbelt, MD, United States.
2. Johns Hopkins University Applied Physics Laboratory, Laurel, MD, United States.
3. Heliophysics, Goddard Space Flight Center, Greenbelt, MD, United States.

ABSTRACT BODY: It has long been recognized that solar wind bombardment onto exposed surfaces in the solar system will produce an energetic component to the exospheres about those bodies. Laboratory experiments have shown that the sputter yield can be noticeably increased in the case of a good insulating surface. It is now known that the solar wind composition is highly dependent on the origin of the particular plasma. Using the measured composition of the slow wind, fast wind, solar energetic particle (SEP) population, and coronal mass ejection (CME), broken down into its various components, we have estimated the total sputter yield for each type of solar wind. The heavy ion component, especially the He++ component, greatly enhances the total sputter yield during times when the heavy ion population is enhanced, most notably during a coronal mass ejection. To simulate the effect on the lunar exosphere of a CME passage past the Moon, we ran a Monte Carlo code for the species Na, K, Mg and Ca.

INDEX TERMS: [6250] PLANETARY SCIENCES: SOLAR SYSTEM OBJECTS / Moon.

(No Table Selected)